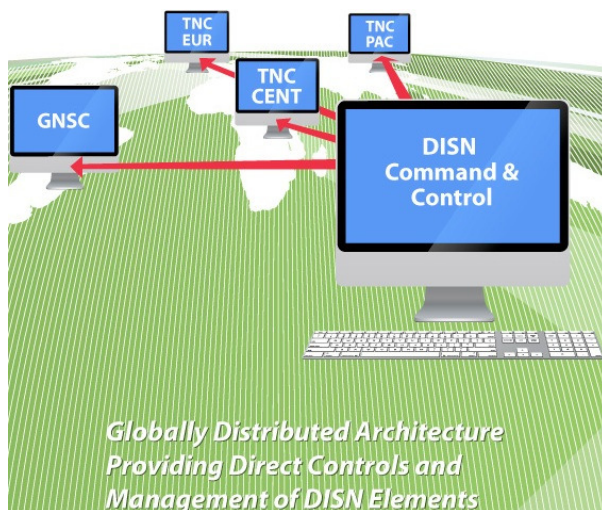


DISN Element Management System

Overview

The Element Management System (EMS) is responsible for all systems that provide direct control and management of DISN elements.

The EMS is implemented through a flexible, reliable, and globally distributed architecture to support network operations at the Global and Theater NetOps Centers. The EMS collects, consolidates, and normalizes fault, performance, and configuration data from network elements and transmits the data to the Network Management System (NMS).



The EMS also includes the **Data Communications Network (DCN)**.

The DCN is a global, dedicated, out-of-band private network with secure dial back-up capability for transporting command and control data between the DISN managed elements and the EMS. The DCN also provides all interconnectivity for the DISN OSS applications and network operators.

Integrated COTS Tools

At the core of the EMS is a set of COTS tools that help manage the various types of communications equipment in the network. These tools provide fault management, configuration management, and performance management for discrete categories of network elements — Optical and IP.

The **Optical EMS** tools manage the elements that provide the long-haul and SONET/ SDH transport for the network, and use legacy optical management protocols. Each Optical EMS provides fault management, configuration management, and performance management in self-contained applications. They include:

- **Cisco Transport Manager** for managing the Multi-Service Provisioning Platform (MSPP) that combines TDM and data networks onto the same SONET/SDH transport
- **Sycamore SilvixManager** for managing the Optical Digital Cross Connect (ODXC) switches
- **Ciena Lightworks ON-Center** for managing the Optical Transport System for the core network transport that includes Dense Wave Division Multiplexing (DWDM), and Optical Add/Drop Multiplexing (OADM) equipment.

The **IP EMS** tools manage elements that use Internet-based management protocols such as the Simple Network Management Protocol (SNMP). This suite of tools provides consistent management for a broad range of equipment and includes the following applications:

DISN Element Management System

- **IBM Netcool**, the IP Fault Manager that collects, processes, & displays events and alarms
- **NetMS**, the EMS for the management of the NET Promina and BBS networking elements
- **CA eHealth**, the IP Performance Manager that gathers, analyzes, & distributes performance data; full implementation on the DISN in 2009
- **ArcSight NCM**, the IP Configuration Manager that maintains an element configuration library and automates change management
- **Packet Design Route Explorer**, the IP route monitoring tool that listens and captures IP routing updates, and sends notifications about IP route anomalies based on pre-defined rules.

The **Voice EMS** tools manage the voice systems. This suite of tool includes the following:

- **Advanced DSN Integrated Management Support System (ADIMSS)** for monitoring and management of the DSN voice switches
- **CA eHealth for Voice** for the performance monitoring of voice over IP systems

Common Architecture

The EMS distributed globally but supported by a common architecture. This greatly reduces the cost of supporting and maintaining a reliable and secure EMS. The EMS collects, consolidates, and normalizes fault, performance, and configuration data from network elements and transmits the

data to the Network Management System (NMS).

SunRay thin clients provide access to the EMS applications through a compact and zero administration desktop.

Sun servers provide a powerful and secure hosting platform.

The **Storage Network** provides flexible and reliable centralized storage.

RSA SecurID provides a centralized and standard method for authenticating and authorizing users.

The Common Communication Vehicle (CCV) uses standard interfaces and service oriented integration to exchange information between systems.

Reliability is built into every aspect of the architecture from redundant hardware to globally distributed sites.

Benefits

The DISN EMS has been designed to constantly evolve and respond to an increasingly Net-Centric operation.

The use of COTS tools minimizes the risks of custom development, speeds delivery of new and powerful capabilities, and provides DISA the benefit of large corporate technology investments.

Security and reliability features of the EMS allow seamless and secure exchange of information and control.

Service orientation and adoption of open standards enable the EMS to be agile and responsive to an increasing demand for broader visibility, more capacity, lower costs, and greater automation.